

**LEVEL OF ENGAGEMENT IN DIGITAL TECHNOLOGIES AMONG THE  
UNDERGRADUATES OF UNIVERSITY OF BENIN**

**BY**

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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT of THE  
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## **DECLARATION**

This project's work is based on a research I conducted under a Professor's supervision at the mass communication department of the University of Benin's faculty of arts. All thoughts, opinions, and viewpoints are the result of my own personal study, and where other people's opinions have been shared proper credits has been given to them.

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## CERTIFICATION

This is to certify that this research work was written and submitted by me, **TAIYE SARAH OHUNENE**, **Matriculation Number Art1901670** to the Department of Mass Communication, Faculty of Arts, University of Benin, Benin City, Edo State.

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**Date**

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**DR. DAN EKHAREAFOR**  
*(Head of Department)*

**Date**

## **DEDICATION**

This project is dedicated to God almighty for his infinite grace, mercy, ever increasing love and protection, throughout my University Education. And to my lovely parents Mr. Taiye Siaka Okaraga and Mrs. Taiye Christiana and my elder Brother Taiye Augustine who supported, guided, motivated, trusted me and saw me through the process of my University Education. Special appreciation to Professor Asemah Ezekiel for seeing me through and guiding me.

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## ABSTRACT

The study examined on the level of engagement in digital technology among the students of university of Benin. Survey method was adopted and the instrument used for data collection was the questionnaire. Using the Taro Yamane formula, 398 people were sampled from the population of 77,000 in the University of Benin City being a Federal University in Edo State, this is a Statistic figure of 2023 population census, during the cause of this survey. 398 questionnaires were distributed among the university of Benin undergraduates and in all, 376 were retrieved. Data collected was analyzed in tables and simple percentages. Digital technologies play an important role in the in the day to day activities of university of Benin undergraduates. In Nigeria, the use of digital technology for academic purpose started in 1932 with simple British teaching aids being used to help with instruction within the country. With time, the use of digital technology for academic purposes by students became rampant around the hooks and cranny of the country which has made educational activities and interactions and communication easier and faster. However, it is important to measure how often students engage in the use of Digital Technology and how it has impacted in them positively in order to promote and utilize the use of digital technologies in the academic activities of the undergraduate students in the University of Benin. This study, assessed the knowledge and perceptions and the use of digital technology among the University of Benin undergraduates. The findings affirms that university of Benin undergraduates are highly knowledgeable about digital technologies and engage in the use of those digital technologies to achieve their academic success. Using digital technology to achieve academic purposes have become imperative.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the study

Digital tools, methods, and resources that assist in the creation, storing, and management of data are referred to as digital technology. Informative technology, or IT, is a key component of digital technology. It is the use of computers to analyse data and information, eliminating waste in the process. The literacy in information, communications, and technology (ICT) has significant effects on social capital, including ties within society, educational institutions, and global communication (Mignone & Henley, 2009). Technology in educational settings can support more flexible and democratic teaching and learning methods, provide students more autonomy and control over their education, and promote the growth of cognitive abilities and comprehension (Buckingham, 2003).

Digital technology integration in the classroom can result in significant gains in student engagement and learning, ensuring that pupils are prepared for the demands of a technologically advanced society. In order to make sure that students are using technology successfully, instructors are essential.

Digital media are communication channels that combine the electronic system compatibilities and controls of contemporary computer, television, and telecommunications technology with the logic of multimedia formats. Electronic media includes digital media. The difference between populations and geographic areas with and without access to contemporary information and communications technology (ICT) is known as the "digital divide." The telephone, television, personal computers, and internet access are examples of this technology (Hannah, 2023). The term "digital divide" describes the difference in wealth between individuals who have access to digital technologies like mobile devices and the internet and those who do not.

Media are "channels or technological devices through which messages are conveyed to a large and heterogeneous audience," according to Asemah (2011, p. 18). These are the means by which signals are sent from a source to a sizable destination. The author goes on to say that "mass media are the devices for accomplishing mass communication by moving messages across time or distance." This is because, rather than using paper and pens, pupils increasingly use electronic devices, which has made their lives easier. These days, the majority of organisations employ digital technology to improve customer experience and manage operations and processes. The advent of digital technology has brought about a significant transformation in nearly every facet of human existence, encompassing communications, the workplace, entertainment, travel, banking, and shopping. The majority of students nowadays utilize this technology to browse the internet for information related to their various fields of study and to satisfy their curiosity. As stated in Carle, Jaffee, and Miller (2009). Research has examined the variations in academic performance between students who received instruction using technological enhancements (such as podcasts and lecture recordings) and those who have been taught without it.

The findings showed that pupils who studied academic material in a classroom with technology enhancements performed better than those who did not. Although it is often known that engaging with people can encourage motivation and deep learning, there are also beneficial learning opportunities when dealing with machines and digital artefacts. According to research, learning is based on a range of viewpoints, and sustaining relationships is necessary to support lifelong learning (Wang, Chen & Anderson, 2014).

Following the corona virus's discovery in Nigeria on February 27, 2020, the majority of schools began using the internet to communicate with and instruct their pupils with the aid of digital technologies, which is also a very efficient means of disseminating information,

assessment of global culture in addition to learning and communicating with others. With the use of digital technologies, it is possible to easily examine even previously unexplored locations. As such, it serves as a means of increasing people's exposure to and familiarity with global events.

This study will look at the different aspects of digital technology, the extent to which University of Benin undergraduates use it, both the good and bad effects of it, and how the good effects have improved and can continue to improve the undergraduates' daily lives. Students can now freely access the internet for communication and information sharing thanks to the use of digital technologies, which are electronic tools, devices, systems, and resources like computers, laptops, smart phones, mobile phones, Wi-Fi, and others that generate, store, and process data. Sani (2006) asserts that mobile communication and telecommunication have completely altered the global rate of knowledge diffusion. The rate at which University of Benin students use digital technologies is the primary focus of this study. The modern world and its various facets are heavily reliant on technology. The global digital revolution has started to seep into the field of education. The way kids learn is changing quickly, and as a result, technology is predicted to change education by making it more accessible and affordable.

Digital technology applications in education are the subject of this work. It talks about the applications of digital technology in education as well as the necessity of using them in the classroom. It also covers a part on the difficulties posed by digital devices in education as well as a discussion regarding the future of digital technologies in education. Technology in the educational setting can support more flexible and democratic teaching and learning methods, provide students more autonomy and control over their learning, and promote the growth of cognitive abilities and comprehension (Buckingham, 2003). The study's

background focuses on how students use digital technology to accomplish their academic goals and the good and negative effects that technology has had on University of Benin undergraduates.

## **1.2 Statement of the Problem**

Over time, people tend to focus more on the positive effects of digital technologies than the negative ones. This includes undergraduate students at the University of Benin, as well as the implications these technologies have on students. For instance, students can customize these devices to their liking, but they can also use them to distract themselves from learning. For example, a student's social media account may automatically distract them from what they were doing when they were previously using these devices. Therefore, the purpose of this study is to investigate how involved University of Benin undergraduates are with digital technology.

Higher education institutions are being forced by COVID-19 restrictions on in-person gatherings to quickly adopt digital technologies that enhance instruction and learning. Although using digital technology provides an obvious solution in terms of logistics, consideration needs to be given to the pedagogical appropriateness of these approaches, particularly with regard to how students interact and learn in the spaces these technologies support. In the modern world, the question of how digital technology is used in Nigerian universities has generated discussion and attention. The majority of academics think that pupils have gotten lazy as a result of using digital technologies.

The purpose of this study is to determine whether or not these claims are accurate. If they are, what steps can be taken to identify and fix the errors; if not, what steps can be taken to employ digital technology to help the researchers meet their academic objectives?

### **1.3 Objective of the Study**

The objectives of the study were to:

1. To determine the extent to which UNIBEN Students have access to digital technologies.
2. To ascertain the level of engagement of UNIBEN Students in digital activities.
3. To determine the attitude of UNIBEN Students towards digital technology.
4. To find out possible suggestions to improve students' engagement with digital technologies.

### **1.4 Research Question**

The following questions are designed to guide the study

1. To what extent do UNIBEN students access to digital technologies?
2. What is the level of UNIBEN students Engagement in Digital Activities?
3. What is the Attitude of UNIBEN students toward Digital Technology?
4. What are the possible suggestions to improve students' engagement with digital technologies?
5. What are the effect of digital technology on the undergraduates of University of Benin?
6. What are the challenges encountered on the usage of digital technology?

### **1.5 Scope of the Study**

The purpose of this study is to determine the undergraduate students' level of engagement with digital technology at the University of Benin in Benin City. Specifically, the research will look at the reasons behind students' use of digital technology, their level of engagement, the impact that these technologies have on them, and the difficulties that they face when

using them. With a sample size of Benin City undergraduates who either use digital technology now or have used it in the past, the study will be carried out utilising the survey method.

A questionnaire designed to gauge the proportion of students using digital technologies will be used to gather data. The study's conclusions, which shed light on how well these digital technologies work for University of Benin undergraduates, will be reached through statistical analysis of the data gathered.

### **1.6 Significance of the Study**

The study of Benin City undergraduates' level of digital technology engagement is an important contribution to our understanding of how these technologies can enhance students' everyday learning and, if used effectively, raise the educational standards of students and undergraduates at the University of Benin. They can also reduce waste and save time and energy for university lecturers.

The purpose of the study is to determine whether students who utilise digital tools perform better than those who do not. This study will also benefit the University of Benin undergraduate student body's educational programme, which will be extremely beneficial to the information, communication, and education sectors.

### **1.7 Definition of Terms**

The following terms are hereby defined:

- **Digital Technology:** Digital technologies are electronic tools, systems, devices and resources that generate, store or process data. Well known examples include social media, online games, multimedia and mobile phones.
- **Digital Learning:** Digital learning is any type of learning that uses technology. It can

happen across all curriculum learning areas.

- **Data:** facts and statistics collected together for reference or analysis.
- **Electronic Tool:** This means any software, system, electronic functionality or service, including interactive devices, internet capability, functionality, site or service hardware, device or communications facility.
- **Level of Engagement:** Levels of engagement in the workplace are stages that mark employees' participation and commitment to their professional tasks and role as team members. It relates to staff members' investment in an organization and its success and can impact their performance and productivity.
- **Mobile Phone:** A telephone with access to a cellular radio system so it can be used over a wide area without a physical connection to a network.
- **Multimedia:** The use of a variety of artistic or communicative media.
- **Social Media:** websites and applications that enable users to create and share content or to participate in social networking.
- **Technologies:** machinery and equipment developed from the application of scientific knowledge.
- **Undergraduates:** A university student who has not yet taken a first degree.

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

In order to provide current information and perceptive findings, the researcher provides a conceptual assessment of the relevant literature in this chapter, starting with a historical review, earlier studies on this discourse, and the communication theories that underpin this work.

- Brief history of technology
- History of Digital technology
- Brief history of the University of Benin
- Conceptual review of technology
- Concept of digital technology
- Digital technology and its significance
- Role of digital technology in the University of Benin
- Importance of digital technology among undergraduates
- Impact\ Effects of digital technology on university undergraduates
- Empirical Review
- Theoretical Framework
- Summary

## **2.1 Historical Review**

### **2.1.1 History of Technology**

Many important technology, particularly digital technologies, have been incorporated into education over the past century. Most of these technologies have been predicted to completely transform education. It is widely acknowledged, therefore, that there haven't been any significant shifts or reorientations in the field of education. Though there hasn't been a revolution in technology use in the recent century, there have been a number of significant breakthroughs and gains in educational access and equity. This chapter's critical aim is to see past the media's and technology's recent century-long hype and instead analyse the relevance of these shifts in terms of how we currently approach teaching and learning using technology.

The chapter looks at the pre-digital, personal computer, and internet eras—what we have dubbed the three "ages" of technological integration—to investigate this problem. It would be incorrect to believe that this is the only way to understand the history of technology in education, even if we have described these three eras. The history that you and your family and community experience varies depending on factors including where you live, how well you and your family are educated, and how culturally and socioeconomically oriented you are. For instance, internet access and the changes it brought about in terms of educational opportunities were available in urban areas long before they were in rural regions, and they continue to be an issue in distant locations even now. Examining three major shifts in the way technology is provided in education, this chapter offers one viewpoint. Although they offered a number of advantages, the technologies of each era were not as widely used in education as was anticipated. These benefits and expectations will be examined in light of several major societal trends and preconceived notions about education at the time. The final section of the chapter examines how our understanding of teaching and learning is shaped over time by a critical perspective on digital technology. The issue of educational technology history is

well-trod, and there is ample documentation on the various outcomes of integrating technology into teaching and learning. Understanding the background of educational technology is crucial for making educated judgements regarding its use in your own practice and for better understanding what is expected of technology integration. When talking about technology in education, we could refer to the simple pen, or even chalk. However we'll start the conversation about films, radio, and TV in this chapter. Even though these are pre-digital technologies, they are significant forerunners of how society and education interpret more modern technological advancements.

In the late 1890s and the 1920s, respectively, radio and film were first shown in classrooms. In the 1950s, television was first introduced. In remote, rural, and regional locations, their adoption was slower. Notably, these devices were not created especially for educational purposes and were widely accessible in homes. In his 1986 book *Teachers and Machines*: Larry Cuban offers a crucial examination of the employment of film, radio, and television in the classroom.

The classroom use of technology since 1920. He takes into account the employment of these technologies in this analysis from p. 1 1900 to the 1980s. When all three of them were first launched, there was a lot of enthusiasm for the potential for teaching and learning. It was believed that each would transform education by opening the classroom to the outside world. Even so, just a small amount of teaching and learning was done with all three of these. Tensions between popular opinion and educational policy, as well as the reality of teaching and learning in the classroom, contributed to this discrepancy between expectations and actual usage of technology. Many nations made national and economic priorities in the early 20s. Governments started providing public funding for education, which led to a sharp rise in the number of secondary school pupils (Cuban, 1986). Industrialization was also causing notions about productivity and efficiency to proliferate quickly at the same time. Thus, it was

desirable to have instructional methods and technology that could effectively and directly reach a large number of students. TV, radio, and films were appropriate for this societal goal. Via aural and visual channels, all three devices "delivered knowledge" to the students. They were supposed to be simple to include with written assignments and the current, conventional textbooks. Combining media, especially television, was seen as "the closest thing to real experiences" (King 1954, p. 20, cited in Selwyn, 2011) and as a productive way to extend the classroom (1954, p. 373). The use of visual aids and instruction visualization started with this. Some people thought students could learn everything they needed to know by watching films, TV shows, or listening to radio broadcast programmes because of the widespread positive perception of these technologies and their benefits (Selwyn, 2011). This was in line with the then-dominant theory of learning. Behaviourist theories were used to understand learning in the early 1900s (Goodman, 1995). According to this collection of theories, learning and conduct are shaped by the environment. It was believed that children were "empty vessels" that needed to be filled with information, such as times tables, state capitals, and the alphabet. Learning is one way that children can be conditioned to do particular activities. The majority of this was accomplished through instructor lectures, practice, exercises, and repetition—often referred to as "teacher-centered" methods. This method of teaching was widely known as objectivism. Although not overtly objectivist at the time, lesson and curriculum design frequently reflected these ideas. Lessons under this method were focused on determining learning objectives, providing resources to support them, and measuring the results (Goodman, 1995). There were no revolutions as predicted. Relatively little use of all three technologies was seen in schools. Teachers did not feel comfortable using the pricey, logistically challenging-to-set-up and organize tools in the classroom. More importantly, a large portion of the content that was widely accessible was not appropriate for use in education, even though educational resources were made to be used with these technologies.

Additionally, studies revealed that using these technologies did not significantly promote learning (Cuban, 1986). However, the use of film, radio, and television did provide a greater choice of resources that could be used and reused in learning, even though learning was not very different from current ways. For instance, films and/or television offered pupils a means to witness a volcanic explosion, whereas in the past they might have just read about them.

### **2.1.2 History of Digital Technology**

The Latin term "digital," which means "finger," alludes to one of the earliest counting instruments. Digital information is transformed into numbers—basically, "zeroes and ones" on a machine level—when it is stored, sent, or forwarded. Within the context of this chapter, the term refers to technology that uses microprocessors; that is, computers and computer-dependent applications, like the Internet, as well as other devices, like video cameras, and mobile devices, like phones and PDAs.

Schools were able to obtain desktop computers when they became reasonably priced in the 1970s and early 1980s. Like with pre-digital technologies, the public's belief in the beneficial effects of computer use on learning was widespread and largely unsupported. Education departments started buying computers to stock computer labs and place in classrooms. Computer companies, like Apple and IBM, have also contributed to education programmes by creating educational content and software and buying machines for classrooms. Once more, it was thought that computers would completely transform education.

In his 2011 book *Education and Technology: Key Issues and Debates*, Selwyn explores how "computer-tutors" were supposed to help students with problem solving and creative thinking in addition to imparting skills like drill and practice. They would offer individualized instruction that was in line with the goals and needs of the pupils. In the end, the belief was that computer-based training could offer flexible and customized education to any adult or

kid

(Suppes,1966).

Cuban (2001) explores how the era's school changes were influenced by the belief in the advantages and efficacy of computers in his book *Oversold & Underused*. Changes and reforms remained focused on productivity and accountability in addition to efficiency and reaching a larger student body. In education, a heavy emphasis on learning objectives and learning assessment persisted. Governments wanted to see a return on their financial investment in computers and other technology in schools. This heightened focus on measuring learning outcomes, frequently via national or state-level standardized testing. The idea that information and abilities needed in the workplace were evolving also had an impact on education. Workers who could analyse and solve issues would be in more demand than those who could only perform manual tasks (Hutchins, 1990, as cited in Goodman, 1995). One important aspect of this future workplace was thought to be computers and computer literacy. It was therefore required of schools to equip pupils for critical thinking in this technologically advanced world. The availability of computers for students in the classroom became crucial in this setting. According to Cuban (2001), the proportion of "students to computers" has come to represent the standard and point of comparison for educational performance. This led to more money being spent in school computer labs and classroom computers in the 1980s. One-to-one laptop programmes gained popularity later on. The idea behind these programmes was that laptops could be customised to each student's needs or preferred method of working, and that all students would have complete and unrestricted access to the technologies required to get ready for future job. Early in the 1990s, Australia launched the first of these initiatives. Numerous worldwide one-to-one computer efforts have been launched since then, with one of the largest being the Australian Digital Education Revolution (2007-2014). Many of these one-to-one initiatives, like the One Laptop per Child (OLPC) programme, were founded on the idea that computer use would promote

greater social equality in society and education by enabling all kids to have access to technology knowledge and skills. A growing number of computers in classrooms allowed for more individualised instruction and innovative methods of learning through the use of games, software, programming, computer tutors, and software. According to Jonassen (1991), learning theories of constructivism and cognitivism—both of which were developed in the early 1900s—were the best suitable for comprehending computer use. According to these methods, students weren't just "empty vessels"; rather, they had past knowledge and experience that contributed significantly to their learning. These theories were integrated by educational technology into a broader perspective of "student-centered" instruction, which prioritized learning activities that focussed on student construction and inquiry (see Papert, 1980). It was often accepted that teachers required to switch to a student-centered method of instruction in order to fully benefit from computers. One instance of this was the California-based Apple Classrooms of Tomorrow (ACOT; 1985) project (see to Sandholtz, 1997). Computers were seen in these kinds of programmes as a transformative tool that would start the shift in teaching from a teacher-centered paradigm—in which students receive their knowledge from lectures and texts—to a more student-centered paradigm—in which students use technology to collaborate and design their own learning. These teaching strategies were in line with the notion of future employment and the kinds of competencies that students were expected to possess.

### **2.1.3 A Brief History of the University Of Benin**

In 1970, the University of Benin was established. It began as a technology institute and received full university status on July 1971 from the National Universities Commission (NUC). The Institute of Technology's name was changed to the University of Benin during a budget address made by Col. SO. Ogbemudia, the military governor of the Mid-Western State at the time, in April 1972. With a multitude of faculties, departments, institutes, and units, the

institution is still expanding today. In 1991/1992 and 1992/1993, the university tested the collegiate system in accordance with NUC's instructions.

## **2.2 Conceptual Review**

### **2.2.1 Concept of Technology**

The practical application of scientific knowledge, particularly in industry, is known as technology. The world of today is being referred to as a global village, where people are instantly connected by a web of information networks, thanks to the assistance and advancement of technology (Singhal and Rogers, 2001). A more inclusive term for information technology (IT) is information and communication technologies (ICTs), which encompasses all forms of communication technologies such as wireless networks, computers, smartphones, computers, software, middleware, social networking, video conferencing, and other media applications and services. The significant introduction of contemporary information and communication technologies (ICTs) contributed to the realisation of holistic growth, which is evident in the present world.

ICTs such as smartphones, webcams, video conferencing, Telnet, the internet, and so on are examples of new media. They are the improvement of information processing and communication through the fusion of telecommunication and computer technologies. Information and communication technologies (ICTs) have advanced and benefited our lives in many ways, bringing new media into the world. ICTs, according to Olise (2007), gave many Nigerians hope in almost every aspect of their lives. Thanks to modern ICTs like smartphones, the internet, microcomputers, digital radios, MP3 players, and digital radios, among many others, people can now communicate ideas, messages, and information with each other regardless of time, place, or distance.

For this reason, technology is defined as the application of scientific knowledge to the goals of everyday life—or, as it is frequently expressed—to the modification and alteration of the human surroundings. According to Muriga (2009), radio, television, and newspapers are

currently under competition from digital mass communication platforms like podcasts, Wikis, videoblogs, and text blogs.

Additionally, Adeniyi and Bolzano define new media as media and communication activities that are distinct from traditional mass media and made feasible by the industrial revolution.

Too often, research focused on particular new technologies emphasises the uniqueness of these advances at the expense of making connections to prior, pertinent research. The technical complexity of the original discovery and the dispersion of prior pertinent research across multiple adjacent scientific areas may increase the likelihood of this omission. This is the situation with blockchain technology research, which is among the most anticipated new inventions of the last several years. Blockchain is a technology that enables decentralized processing and storage over a network of computers by relying on a peer-to-peer, tamper-resistant network.

The bitcoin payment system, protocol, and cryptocurrency are the most well-known uses of blockchain technology (Beck et al., 2017; Lindman et al., 2017, 2020; Xu et al., 2017). In particular, unrealized potential for the theoretical advancements of blockchain—forks, community governance, developer community, and so on—remains in the earlier OSS2 study. The conceptual foundations of many terminology used in discussions of blockchain technology may be found in OSS development. But for a variety of reasons, research that documented these advancements starting in the middle of the 1990s has mostly been left out of conversations about blockchain technology. It appears that there is a difference between previous studies on open software development practice and discussions on blockchain technology. Blockchain proponents frequently exhibit a near total lack of awareness of relevant theoretical ideas from past studies or decide for various reasons not to draw parallels

to those discussions.

Thus, the main question addressed in this paper is what OSS research can teach us about public blockchain (s). Answers to this question are divided conceptually into three parts:

- 1) OSS 2.0 research,
- 2) Research on governance of community development, and
- 3) Research on forking.

Professionals and researchers in this field will find these insights to be intriguing. Keep in mind that OSS research is not the only field that could provide fascinating new perspectives on past research; there is a tone of work that can be done in a similar manner with blockchain. This work is wholly theoretical and is based on past studies conducted in this field. Since blockchains are a complex phenomenon, this article's discussions will only cover the two most well-known public blockchain ecosystems, Ethereum and Bitcoin. The paper is structured as follows. This section gives a brief overview of the concepts first. The Background section presents pertinent definitions and theoretical frameworks. Subsequently, the presented concepts are examined in three distinct domains: forking, community governance, and OSS 2.0 in Section Discussion. After outlining the article's shortcomings and practical ramifications, Section Conclusion brings it to a close.

### **2.2.2 Concept of Digital Technology**

All digital tools, systems, and resources that assist in the creation, storing, and management of data are included in the definition of digital technology. Information technology (IT), which is the use of computers to process data and information, is a significant component of digital technology. These days, the majority of organisations employ digital technology to improve the customer journey, manage operations, and streamline processes. Due to its ability

to transcend geographic borders, communication technology has led to an increase in the speed and effectiveness of communication methods.

When using electronic technology in the classroom, educators must recognise cultural variations and emphasize to their students the value of basic communication skills. Although many schoolchildren are quite at ease with emerging technology, they often overlook the equally crucial requirement of building relationships in order to improve the calibre of information they are sharing. Learning how to communicate electronically is essential to becoming a lifelong learner. By stimulating previously unfeasible synergies between people and resources, these communication channels have facilitated processes like collaboration.

This chapter will look at a number of instances where educators and schools are collaborating online and sharing materials and ideas with staff and students. When the coronavirus was found in Lagos State, Nigeria, on February 27, 2020, that was an example of the application of digital technology. People who were infected were placed under quarantine during that time, and a lot of hospitals, schools, marketplaces, and social meeting places were shuttered. Individuals have to start conversing and disseminating information using technology and the internet. The University of Benin took part in this along with several other Nigerian schools. The 200-level Mass Communication students also participated in a conference call lesson by utilising our cellphones to get instructions.

Thanks to these digital technologies, a large number of undergraduate students no longer print their assignments at cyber cafes; instead, they download various Microsoft apps and do their work on their laptops, mobile devices, and desktop computers which, for the majority of them, has made life easier. According to Witten and David (2003), digitization is the process of transferring traditional learning resources—such as books and papers—into an electronic format so that a computer can store and manipulate them.

According to Kannappanava, Rajamkanta, and Tandur (2010), digitization is the process of converting materials created in one format into another, such as an electronic message. It does not include items that were created digitally in the first place, such as email correspondence. Similarly, digitization was characterised by Jagboro, Omotayo, and Aboyade (2012) as the entire process of putting collections of historical and other documents online. Digitization, according to Pandey and Misra (2014), is the process of transforming analogue data into a digital version. The process of digitization entails the development of digital replacements for original copies or tangible items. The process of digitization promotes unrestricted access to materials like electronic theses.

Ding (2000) lists the following benefits of digitization:

- Due to digitization, fewer new buildings are needed, information sharing is improved, and collecting redundancy is decreased.
- Internet development is a result of digitization in institutions with a digital foundation.
- Digital materials are swiftly and readily transmitted, categorised, and retrieved.
- Digital texts can be connected, made interactive, and improve the retrieval of more information.
- When storing files in an electronic device with compatible capabilities and equipment, accessing electronic information is less expensive than its print counterpart.

The way that consumers explore and share information is evolving; they are now purchasing for tangible goods. Businesses need to use digital technologies to help customers throughout the purchasing process in order to adapt. To inform and educate customers about their products and services, for instance, a lot of businesses have social media accounts and websites. Many of them also have an online store to give customers an even more flexible shopping experience in addition to their traditional brick and mortar business model. To draw

in and keep their target audiences interested, some creative businesses even employ cutting edge technologies like virtual reality and augmented reality. Businesses use digital technologies to boost their bottom line. Due to the fact that technology allows for endless communication, businesses are able to reach millions of customers globally and expand their reach beyond national borders. Lastly, since most modern businesses automate their processes, digital transformation is not only necessary but also essential for all of them. If they don't adapt, they will fall behind and lose their competitive edge. However, there are a number of incentives for businesses to digitise. For instance, as computers are taking over from humans in monotonous activities, production will move more quickly. Therefore, it is possible for everyone to collaborate more easily when corporate data is coordinated in a single system.

Electronic tools, software programmes, and other resources that make data creation, storing, and management easier are referred to as digital technology. It includes a broad range of instruments, frameworks, and apparatuses that produce, store, or handle data, such as mobile phones, digital cameras, cloud computing platforms, and personal computers. Businesses need digital technology because it expedites procedures, boosts worker productivity and efficiency, and frees up employees to concentrate on higher-level tasks that computers cannot perform. Additionally, marketing, advertising, and product sales all make extensive use of it. The process of integrating digital technology into every aspect of an organisation to radically alter how it functions and provides value to clients is known as "digital transformation."

According to Nwabueze (2009), what is considered new media at any given time is determined by trends in technical innovation. Organisations must reconsider outdated operational paradigms, engage in more experimentation, and develop greater agility in responding to competitors and customers as a result of this cultural shift. Some leaders believe the term "digital transformation" is no longer useful because it is now so extensively

used and broad. Generally speaking, nonetheless, digital transformation brings about significant adjustments to the way companies function and provide value to their clientele.

Some examples of digital technology include:

- Digital cameras
- Personal computers
- Mobile phones
- Cloud platforms
- Social media platforms
- Artificial intelligence (AI)
- Online games
- Multimedia

**Digital Cameras:** A camera that stores photos in digital memory is called a digital camera. Today's cameras are primarily digital. Mostly taking the place of those that record on photographic film. Nowadays, digital cameras are commonly integrated into smartphones and other mobile devices, offering features and capabilities comparable to or greater than those of standalone cameras (which are still in production). Professionals and enthusiasts for better photos still frequently utilise dedicated high-end, high-definition cameras. However, the history of digital cameras is much longer than you might imagine. The first digital camera was created in 1975 by Eastman Kodak in Rochester, New York, and it had a screen that showed pictures.

**Canon Power Shot:** This is a digital camera model. The Canon Power Shot 95 (released around 2004) was a conventional pocket-sized compact camera that featured an articulating screen, a mode dial, and a viewfinder. These days, one may use a smartphone to record any event because they come equipped with digital cameras.

**Personal computers/ Laptops:** A microcomputer intended for single-user operation is called a personal computer (PC). Before the invention of the PC, computers were solely meant to be shared by employees of organisations at a reasonable cost. But as time went on, more and more people began purchasing laptops and desktop computers for their own use. In order for them to independently access the internet whenever they want. In the 1970s, it became possible for individuals to purchase affordable, small-sized computers for use in their homes. By 1990, some personal computers had shrunk to the point of being fully portable. They comprised less powerful pocket-sized computers called personal digital assistants (PDAs) and laptop computers, sometimes known as notebook computers, which were roughly the size of a notebook. The majority of students at the University of Benin have personal laptops that they utilise in their dorms when they visit school these days. Using a personal computer has become standard practice these days.

## 2.3 Opinion Review

### 2.3.1 : Digital Technology and its Significance

Massive volumes of information can be condensed using digital technology and stored on compact storage devices that are simple to maintain and move. Additionally, digitization speeds up data transfer. Digital technology has completely changed the way that people work, learn, and communicate. Personal laptops include models from Dell, Apple, and HP, among others.

**Mobile phones:** Unlike fixed-location phones, mobile phones, often known as cellphones, are portable phones that may be used for both receiving and making calls over a radio frequency link while the user is travelling within a telephone service area. By connecting to a mobile phone operator's switching equipment, a radio frequency link gives users access to the public switched telephone network (PSTN). In North America, mobile phones are referred to

as cellphones (or "cell phones") since modern mobile phone services employ a cellular network architecture.

Apart from voice calls, digital mobile smartphones facilitate numerous other services like email, texting, multimedia messaging, internet access (through LTE, 5G, or wifi), short-range wireless connections (such as Bluetooth and infrared), satellite access (including navigation and connectivity), business apps, video games, and digital photography. Smartphones are mobile phones with significantly more advanced computer capabilities than feature phones, which are only capable of basic functions.

Two decades of smartphone development: the 2012 iPhone 6 Plus and the 1992 Motorola 8900X-2 Nowadays, individuals use their phones for more than just making calls. Rather, they now use it to access the internet whenever they want, and young people use it more frequently because it is portable and easy to carry along.

**Cloud Platform:** The hardware and operating system of a server in an Internet-based data centre are referred to as a cloud platform. It makes it possible for hardware and software to coexist at scale and remotely. How then do cloud platforms function? Businesses rent the ability to use compute services, including networking, servers, databases, storage, analytics, software, and intelligence. As a result, businesses are spared from having to establish and maintain data centres or computer equipment. All they pay for is what they utilize. Platforms for the cloud come in several varieties. Not one of these is effective for everyone. To help satisfy the various needs of users, a variety of models, varieties, and services are offered. Among them are:

- **Public Cloud:** Third-party providers that offer computer resources online are known as public cloud platforms. AWS, Google Cloud Platform, Alibaba, Microsoft Azure, and IBM Bluemix are a few examples.

- **Private Cloud:** An organisation can only use a private cloud platform. Usually, it's hosted by a third-party service provider or in an on-site data centre.
- **Hybrid cloud:** a blend of private and public cloud computing environments. Applications and data flow between the two with ease. This improves infrastructure, security, and compliance while offering the company more flexibility.

Organisations may test and build apps, store, backup, and recover data, and develop cloud-native applications with the help of a cloud platform. Organisations might also use it for data analysis. Additionally, businesses can provide software on-demand globally, integrate information into their processes, and stream audio and video.

**Social Media Platform:** Any organisation that offers the public a way to share voice, expression, information, or other content—usually in the form of messages, videos, images, and/or sound files—with other users or the general public is referred to as a social media platform. Social media services such as Facebook, WhatsApp, Instagram, WeChat, Telegram, tik Tok, and others facilitate communication between individuals and their surroundings.

Artificial intelligence refers to the idea and creation of computer systems that are capable of carrying out tasks that would typically require human intelligence, like speech recognition, visual perception, decision-making, and language translation. It is the artificial intelligence (AI) of machines, particularly computer systems. The artificial intelligence (AI) can be an app or a link that aggregates information from various online sources to offer logical responses to queries. This website is used by so many students for their benefit.

AI was first developed between 1950 and 1956. The phrase "artificial intelligence" was created and became well-known. Important dates: The Imitation Game is a test of computer

intelligence that Alan Turing proposed in his 1950 publication "Computer Machinery and Intelligence."

Programming for AI concentrates on cognitive abilities such as these:

- **Learning.** This area of AI programming is concerned with gathering data and formulating the rules necessary to transform it into useful knowledge. The rules, also referred to as algorithms, give computing devices detailed instructions on how to carry out a certain activity.
- **Reasoning.** Selecting the appropriate algorithm to get the intended result is the main goal of this area of AI programming.
- **Self-correction.** The goal of this AI programming feature is to continuously improve algorithms so they can deliver the most accurate results.
- **Creativity.** This branch of AI creates new text, images, music, and ideas through the use of neural networks, rules-based systems, statistical techniques, and other AI tools.
- **Online Games:** Video games that are played exclusively or mostly online via the Internet or another available computer network are referred to as online games. CODM is an instance of an online game. During their free time, people frequently play these games. I know it may also be extremely addictive.

**Multimedia:** Multimedia refers to the utilization of several media for public education, information, and entertainment. Unlike traditional mass media, like printed material or audio recordings, which feature little to no user interaction, multimedia is a form of communication that combines various content forms, such as writing, audio, images, animations, or video, into a single interactive presentation. A multimedia system combines numerous communication modalities to convey information or provide enjoyment. Multimedia

presentations could be used for presentations in school. The word itself, which is often written as multi-media with a hyphen, has been in use since 1962. It is derived from the Latin words *multus*, which means "many or much," and *media*, which is the plural form of *medium*, which means "system of communication." Multimedia consists of five fundamental components: text, graphics, audio, video, and animation. Examples include text in faxes, pictures, GIS maps, voice commands, audio messages, graphics, and music, animation of moving graphics, full-motion recorded video, and live video.

### **2.3.2 Role of Digital Technology in university of Benin**

Nowadays, digital technology is all the rage in international socioeconomic matters. It is now crucial for all nations, groups, and establishments—regardless of their status—to recognise and accept it. Digital technologies have developed into extremely sensitive means of communicating with individuals worldwide and obtaining information, thanks to data connections, network services, and internet connections. The modern world is knowledge-based, with the digital era dominating almost every aspect of life. Therefore, the use of digital technology is a must for providing universities with high-quality instructional services; One of the organisations that has profited considerably from the introduction of digital technology is the University of Benin (laptops are instances of digital technology, as is their use during CBT examinations). All types of university of Benin lecturers, including those with physical disabilities, have found that digital tools are helpful in their classroom teaching and learning environments. It has also been shown to be helpful to students, who utilise their laptops and phones to access the internet to learn about projects, group projects, assignments, and the majority of them even employ artificial intelligence (AI).

Most students also use these technological devices to store data and keep those data/information for future references. Ntukidem and Ashi (2009) maintain that persons with

visual impairment have variously benefited from the use of electronic device such as screen reader, which an increasing number of blind or low vision computer users use to listen to textual materials that appear on their computer screen. Geoffrey, Chisholm and Wendy (1999) confirmed in their survey that the use of screen-readers by people using windows have tremendous gains.

According to a study by Okon and Jacob (2002) on the use of ICT by academics in particular Nigerian universities, 61.30% of the respondents said they used computers for teaching and research, indicating a high level of computer usage. Higher education institutions in Nigeria have experienced a shift in digital culture as a result of the COVID-19 epidemic, which has expanded the use of digital technology in both teaching and learning. As a result, many University of Benin students were forced to use online lecture platforms like Skype, Zoom, and Telegram, among others. The use of information and communication technologies (ICT) in Nigerian universities is gaining momentum, and the Internet is used by faculty, staff, and students in sourcing information.

ICTs help libraries deliver up-to-date and effective information services as well. In Nigeria, the digitization of education is viewed as a means of advancing technology and includes the use of a variety of techniques, such as blended and virtual learning. But several obstacles prevent it from operating well, particularly in Nigeria.

According to Witten and David (2003), digitization is the process of transferring traditional learning resources—such as books and papers—into an electronic format so that a computer can store and manipulate them. Digitalization, according to Kannappanava, Rajamkanta, and Tandur (2010), is the process of converting materials created in one format into another, such as an electronic message. However, materials created digitally in the first place, such email correspondence, are not included in this definition.

Similarly, digitization was characterised by Jagboro, Omotayo, and Aboyade (2012) as the entire process of putting collections of historical and other documents online. Digitization, according to Pandey and Misra (2014), is the process of transforming analogue data into a digital version. The process of digitization entails the development of digital replacements for original copies or tangible items. The process of digitization promotes unrestricted access to materials like electronic theses.

### **2.3.3 Impacts of Digital technology in university Of Benin Undergraduates**

Students' experiences with digital technology have been both positive and negative, and this is equally true of its benefits and drawbacks. This is due to the fact that digital technology affects students' daily lives in both positive and negative ways. As stated by Ding (2000) lists the following benefits of digitization:

- Due to digitization, fewer new buildings are needed; information sharing is improved, and collecting redundancy is decreased. Students have been able to establish reciprocal bonds and establish connections with one other through communication by using mobile phones in the university.
- Internet development is a result of digitization in institutions with a digital foundation.
- Digital materials are swiftly and readily transmitted, categorised, and retrieved.
- Digital texts can be connected, made interactive, and improve the retrieval of more information.
- When storing files in an electronic device with compatible capabilities and equipment, accessing electronic information is less expensive than its print counterpart.

Additionally, patrons can access and use these materials without having to travel to libraries that have actual copies of the resources (Fabunmi, Paris, and Fabunmi, 2009). According to

Pandey and Misra (2014), digital projects let users look for groups quickly and thoroughly from anywhere at any time, and they don't create any barriers for multiple users to view the same content at once. In support of this, Urhiewhu and Daniel (2015) believe that information will become accessible to everyone through the digitization of library resources rather than just a select set of scholars. The unseen becomes visible through digitization, according to the writers.

Additional advantages that Akpan-Atata and Enyene (2014) enumerated are as follows:

- **Universal Access:** As long as there is an internet connection, everyone can access the same information from anywhere in the globe.
- **Capacity:** Because digital material takes relatively little physical space to retain it, digital books have the potential to reserve much more information than traditional libraries, which have limited storage places.
- **Cost:** Maintaining a digital learning environment is less expensive than operating a traditional one.
- **Enhanced searching methods** through different search engines and manipulation of information.
- **Improved facilities for information sharing.**
- **Information is made available in a timely manner.**
- **Better cooperation with other information centres and institutions;** opportunities to create consortiums where they may pool resources and obtain learning software at a true volume discount.

One cannot overstate the advantages of digitization. Digitization has revolutionised research by facilitating easy access to formerly restricted information and bringing about great improvements. Carr (2000) noted that digital institutional materials, like these, research papers, manuscripts, photos, or specialised monographs, are extremely valuable in academic settings. Digitization emerges as the greatest solution to preserve the original copies of rare publications coming from institutions.

Academic institutions are marketing surrogate copies while preserving their original publications by taking advantage of digitization's benefits. It is important to recognise that our world is heavily reliant on technology. It's safe to say that technology is on the rise and doesn't appear to be slowing down anytime soon, given how the internet exploded onto the scene in the 1980s and 1990s, became accessible to the average Nigerian student in the last ten years, and eventually started to fit into our pockets with the development of smart phones. The internet now permeates many facets of our lives. We don't even consider all the places it affects because we are so accustomed to it. In academic settings, it facilitates efficient communication. We go to our entertainment online.

We turn to the internet for answers to all of our questions, no matter how simple or intricate. Asogwa (2011), B.E. The area of education, on the other hand, is one where we might not consider the implications of technology as much. This study looks at all the ways that technology has affected the Nigerian education system and how it has entered school hallways both domestically and internationally. In many aspects, Nigerian education has not much improved. The conventional educational system is still in use. A group of students or an individual student receives instruction from a teacher, and they use their education to prepare for life in society.

A select few will thereafter pursue careers as educators, sharing their skills with the following generation. Students can now conduct research, take part in discussions and projects, and even get practical experience that will help them better understand and manage the world and their future occupations thanks to the advancements in technology. According to Ding, C.M. (2000), some of the main benefits of digitising education are as follows:

### **Greater Accessibility**

For learning to occur, Pandey, P., and Misra, R. (2014) assert that teachers and students must be physically present in the same space. However, with the recent advent of technology in education, instantaneous and convenient communication across long distances is now possible with just a button press. The impact of technology on education is so great that online degrees are now a possibility. In Nigeria, there are currently established traditional schools that provide some of their courses online, and there are also new schools that function completely online, with no in-person interactions between students and teachers. The same technology enables cyber-schooling in elementary and secondary education, allowing students to do their assignments from the comfort and convenience of their homes. These kinds of online education have greatly aided in removing obstacles that have long kept many students from enrolling in particular universities. And this has consequently made a substantial contribution to Nigeria's overall technological growth.

### **INCREASED FLEXIBILITY**

Increased accessibility and flexibility brought about by the internet go hand in hand. Students no longer have to worry about making it to class at set times, which is often unachievable because of employment or family obligations thanks to online learning. Rather, the course materials are accessible online, and students can study and do assignments whenever their schedules allow.

For a great number of people who would not have been able to attend a traditional school, technology has made education accessible. For example, anyone earning a full-time job will now be able to pursue their education alongside their work. There are options for parents of little children to go to school (Unsworth, J. 2004).

### **IMPROVED ABILITY TO MEET SPECIAL NEEDS**

The academic world was previously characterised by a strict classroom organisation. Regardless of the differences in their requirements or talents, every student had the same experience. Some pupils had unmet requirements, but others could operate effectively in this setting.

Utilising technology enhances a school's capacity to serve a variety of student demands. Students who are primarily housebound or who have difficulties speaking, hearing, or seeing can now still obtain a top-notch education. The requirements of kids with intellectual, social, or developmental challenges can also be satisfied by technological improvements. Whatever the special requirements of each student, technology improves education by making it easier to design inclusive learning environments.

### **AVAILABILITY OF ONLINE LEARNING CONTENT**

In the past, learning happened only in a classroom. Books and official videos were the two types of educational resources. One of the ways the Internet has changed education is by allowing anyone to share their knowledge with the world by publishing an educational blog post, e-book, or YouTube video. The far-reaching benefit that comes out of this is that it makes it easier for anyone to learn.

### **ADAPTABILITY AND PERSONALIZATION**

Educational environments are becoming more conscious of the notion that a lesson that works for one student may be practically useless for another, and that a lesson that doesn't make sense to one student may be the one that does for another. Despite the fact that each person has a different brain and learning style, the students studied from the same textbook for a long time. Students might gain from having access to a variety of tools and learning technologies thanks to the arrival of technology in education.

Drawbacks and obstacles that students face when utilizing modern technology there are various obstacles to overcome in the adoption of digital technology in Nigerian colleges, such as:

1. **Inadequate ICT Manpower:** Poor policy and project implementation strategies, and inadequate ICT manpower in schools, are some of the factors that hinder the implementation of digital technologies in Nigerian universities
2. **Lack of ICT Supervisors or Inspectors:** Another issue that ICT workers in Nigerian institutions deal with is the lack of supervisors or inspectors for information and communication technology.
3. **Inadequate Infrastructure:** One issue impeding the successful implementation of digital technologies in Nigerian universities is the lack of essential infrastructure, such as high-speed internet broadband and telecommunications infrastructure.
4. **Inadequate Funding:** One issue impeding the adoption of digital technology in Nigerian institutions is insufficient budgetary provisions, which fall short of the 26% UNESCO recommended for education.
5. **Capacity Building:** Some of the issues with capacity building that prevent Nigerian institutions from effectively utilising digital technology are inadequately trained human

resources, inadequate instructional technologies, and an unsatisfactory student-computer ratio.

**6. Digital Culture and Literacy:** A number of issues permeate many challenges that impede the effective use of educational technologies in Nigerian universities, including digital culture and literacy, ICT and teacher professional development, global awareness, investment benefits in ICT, resource-constrained context, effectiveness, cost, equity, and sustainability.

In conclusion, there are a number of obstacles to overcome before digital technology can be effectively implemented in Nigerian universities, such as a lack of ICT personnel, supervisors, or inspectors, inadequate infrastructure, limited finance, capacity building, and digital culture and literacy.

#### **Other Disadvantages of Digital Technologies According to Students Experience are:**

1. **Noise and pop-up notifications:** Students who use digital technology occasionally become distracted by pop-up notifications on their screens, which can cause them to lose focus on whatever task they were about to accomplish.
2. **Sexuality and nudity:** the extent to which students use social media, including Facebook, Twitter, Porn Hub, and the like. Exposes the majority of them to sexual stuff, which badly affects their thinking because of their addiction to nudity and porn videos.
3. **Elevate Scamming and impersonation:** Fake advertisements and impersonation are two ways that digital technology might deceive someone.
4. **Fake News:** Most of the time, false information that can damage someone's reputation is posted online.
5. **Break Family Ties:** The majority of students don't communicate with their parents or ask them questions. Instead they go to the internet for help.

#### **2.4 Empirical Review**

Studies relevant to this study have been carefully chosen for the empirical review. M. Ally (2012). Wrote about how students in a classroom that is Twitter-friendly pay attention, participate, and are engaged. Presented a paper at the Australasian Conference on Information Systems (ACIS 2012), held in Geelong, Victoria, Australia. The review's conclusions demonstrated a wealth of studies on student participation. But there's no agreement on what exactly qualifies as student engagement. (Baron 2012; Kahu, 2013; Harris, 2008;

Kahu & Nelson, 2018). The lack of consensus make it difficult to ascertain the utility of engagement and its value in enhancing students' learning experience and learning outcomes. The variation in the conceptions of students engagement has led to various discourses of different dimension of students' engagement (e.g behavioural, social and cognitive) though distinct from each other; these dimensions of engagement are often used interchangeably (Burch et al. 2015; Christenson et al., 2012; Fredricks et al. (2016); leading to inconsistency in measuring student engagement. Also, the lack of a shared conceptualization of engagement, makes it difficult to identify the semantic proximity between engagement and related concept such as motivation. Alexander (2017) states, "when researchers do not explain their definitions of key constructs, they introduce a degree of conceptual ambiguity. And when the process of communication theory or research start with conceptual ambiguity, theory integration is far less likely to result." (p. 347). On the contrary, Christenson et al. (2012) view the lack of consensus as an opportunity to view engagement from different perspectives, enriching the concepts scholar.

Another example of this related work on this research is Alshuaibi M. S. I, Alshuaibi A. S. I, Shamsudin, F.M., & Arshad, D. A (2018). Use of social media, students engagement and academic performance of business students in Malaysia. *International Journal of Educational*

*Management*, 32(4), 625–640. Coates, H. (2007). A model of online and general campus-based student engagement. *Assessment & Evaluation in Higher Education*, 32(2), 121–141. The model is exemplified by considering what it says about how increasingly powerful and pervasive online technologies might be leveraged to enhance campus-based student engagement.

## **2.5 Theoretical Framework**

The entire study is based on the theoretical framework, which is a theory of reference. It permits the investigator to provide a critical analysis of the apparent issue (Nwankwo 1984). The Self-Determination Theory will form the basis of this investigation: According to this idea developed in 1985 by Richard Ryan, PhD and Edward Deci, PhD, gratifying three basic needs—autonomy, competence, and relatedness—will promote student involvement in a blended learning environment. As per the theory, the way in which students participate in a learning environment differs greatly from that of a typical classroom. It is attributed to the satisfaction of three basic requirements that are recognised by self-determination theory (SDT): competence, relatedness, and autonomy. In order to meet the needs of the three pupils, related studies have focused on teacher help rather than digital support.

SDT's creators recently declared that issues related to learning technologies ought to be the main emphasis of SDT-based research. In light of this, this study suggested digital support designs to address the three aforementioned needs, evaluated their efficacy, and looked at the ways in which teacher assistance and newly created digital support models influenced student engagement. 426 Grade 11 students participated in the study, which used a sequential explanatory mixed methods research design. These were the conclusions reached. (i) By meeting their needs, digital support increased student engagement in blended learning more than instructor support did. (ii) Student engagement and teacher support were positively correlated. (iii) There were differences in the correlation between student involvement and digital support. The advantages of providing a variety of modalities, taking learning expertise into account, and utilising emotional designs are some possible answers. The results contribute to SDT by adding a new perspective, namely digital support, and thereby proposing a new framework for needs support in blended learning.

## **2.6 Summary**

This chapter's goal was to critically analyse all relevant literature. The literature review examines prior research on the topic, pertinent works that have been published, and current knowledge to help readers comprehend the focus of this paper and the topics it aims to investigate. As a result, this chapter reviews undergraduates at the University of Benin's level of interaction with digital technology historically. Theoretical frameworks, an empirical review, a conceptual review, and an optional review. This chapter has strengthened the research's foundation and contributed to a thorough comprehension of the subject.

## **CHAPTER THREE**

### **METHODOLOGY**

The method and procedures utilised to produce reliable and pertinent data that will be used to meet study objectives and address research questions are the main topics of this chapter. In light of this, the chapter is covered and presented under the subsequent subheading:

- Research design
- Population of the study
- Sample size
- Sampling procedure
- Instrument of data collection
- Validity of Study
- Reliability of instrument
- Methods of Data collection
- Method of data analysis

#### **3.1 Research Design**

This study used a survey research approach to collect quantitative data in order to investigate the University of Benin undergraduate students' level of engagement with digital technologies. Asemah, Gujbawu, Ekhareafor, and Okpanachi (2012) state that a survey entails a thorough analysis of a subject. They went on to explain that it is a research methodology that makes use of a sample in order to understand and provide descriptive claims about a large population. Furthermore, it's a technique meant to create broad statements about human behaviour using observations made inside a population that has been sampled.

As stated by Osuala (2005), quoted by Asemah (2012), "the study of samples from which inferences about the population can be drawn is needed because of the difficulties in attempting to study the entire population." Given this, the survey research design is thought to be appropriate and perfect for gathering pertinent responses. Its goal is to determine the University of Benin undergraduates' level of engagement with digital technologies by obtaining feedback and responses from Benin citizens using a predetermined sample size.

### **3.2 Population of the Study**

77,000 University of Benin undergraduate students make up the research population for this study. Based on information from the Unirank assessment, this figure represents the approximate number of students enrolled at the University of Benin.

### **3.3 Sample Size**

The number of observations or people included in a sample for a study or survey is referred to as the sample size. It refers to the portion of the population that has been selected in order to gather information and draw conclusions about the larger population (Nwaoboli, Ezeji & Osife- Kurex, 2022). The sample size for this investigation is found to be 398.

According to Yamane (1967) sample size can be determined by the following formula.

$$n = \frac{N}{1 + N(e)^2}$$

Where;

n= sample size

N= total population

E= level of precision or error limit= 5%

$$n = \frac{77,000}{1+77,000 (0.05)^2}$$

$$n = \frac{77,000}{1+77,000 (0.0025)}$$

$$n = \frac{77,000}{1+192.5}$$
$$=1+192.5= 193.5$$

$$n = \frac{77,000}{193.5}$$

$$n = 398$$

Therefore, for a population of 77,000, the researcher employed a random distribution of the questionnaires to the respondents.

### **3.4 Sampling Technique**

The multi-sampling technique was used in this investigation to determine the samples. Because respondents were chosen in three phases using simple random, stratified, and basic sample approaches, this methodology was judged appropriate. In the first stage, three faculty members—arts, education, and engineering—were chosen at random from among the University of Benin's fifteen faculties. College of Medicine, College of Dentistry, Veterinary Medicine, Agriculture, Arts, Education, Engineering, Environmental Science, Law, Life Science, Management Science, Pharmacy, Physical Science, and Social Science are the faculties that are currently in place. The researcher then used basic random sampling procedures in the second stage to choose respondents in an objective manner.

### **3.5 Instrument of Data Collection**

A questionnaire was employed by the researcher as a means of acquiring pertinent data for this investigation. Asemah et al. (2012) define a questionnaire as a set of questions designed to investigate a particular subject. In order to ask questions about attitudes and opinions, researchers frequently use questionnaires to collect data on past, present, and future events, conditions, and behaviours. The demographic and psychographic components of the questionnaire were separated. The biodata of the respondents were gathered using the demographic section. The psychographic segment, on the other hand, concentrated on gathering pertinent answers for the research questions in order to address them.

### **3.6 Validity of the Study**

Validity is defined as the quality of a questionnaire ensuring that what is measured or described accurately reflects reality," states Mytton (2007: p. 72). The questionnaire copies were subjected to content and face validity validation procedures in order to guarantee validity. The research instrument was thoroughly examined by two Mass Communication Department professionals, one of whom being the Project Supervisor. They carefully examined the questionnaire's methodology, applicability, and sufficiency as well as the language's clarity and the themes' suitability for each item. These experts' suggestions, remarks, and required revisions were smoothly integrated into the questionnaire's final draft.

### **3.7 Reliability of the Instrument**

The instrument utilised for data collection, the questionnaire, showed a good degree of reliability in accomplishing the goals of the study and answering the research questions. Twenty copies of the questionnaire were given to respondents during a pilot research to test its efficacy.

### **3. 8. Method of Data Collection**

The investigator acquired pertinent information for the investigation from primary and secondary sources. In order to provide a simple retrieval procedure, questionnaires were individually given to respondents in order to collect primary data. One week was dedicated to gathering the data. Relevant questions were divided into areas pertaining to psychographics and demographics on the questionnaire. Additionally, information from general textbooks, other studies, journals, and the internet and library were used to compile secondary data.

### **3. 9 Method of Data Analysis**

Frequency tables and simple percentages were among the statistical techniques used to analyse the quantitative data from the administered questionnaire. Frequency tables were used to provide figures that were easy to understand by simplifying complex data. Simple percentages made data statistics easier to understand in terms of response numbers and percentages, with a default value of 100%. To improve basic comprehension, explanation notes were included with each table.

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

The data gathered via the questionnaire is presented and analysed in this chapter. They were gathered and subjected to the straightforward percentage technique analysis. After the questionnaire has been administered, 376 copies total—22% of the 398 copies issued were not correctly filled out—which accounts for 94% of the returns and 6% of the loss. Consequently, it makes sense that 376 responders would account for 100% of the sample size under investigation. The following analysis of the questionnaire items makes use of tables, percentages, and frequencies to display the results.

#### 4.1 Data Presentation and Analysis

**Table 1: Distribution of Respondents by Gender**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Male.	172	46%
Female	204	54%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 1 indicates that the study is made up of male and female participants. However, a larger percentage of the study participants were female.

**Table 2: Distribution of Respondents by Age**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
14 - 22 years	52	14%
23 - 25 years	206	55%
26 - 28 years.	58	15%
29 years and above	60	16%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 2 shows that the study involved respondents within different age bracket.

However, a greater percentage of the study participants are within the age of 23 - 25.

This implies that the study is composed more of young people.

**Table 3: Distribution of Respondents by Level**

<b>Variables</b>	<b>No of Respondents.</b>	<b>Percentage</b>
100	91	24%
200	88	23%
300	44	12%
400	154	41%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field survey 2024**

Table 3 shows that a dominant percentage of the respondents who participated in the study are 400 level students. This indicates that final year students made themselves more available for the study.

## **SECTION B: Psychographics**

**Table 4: Access to a computer or smartphone with internet connection**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Yes	376	100
No	0	0%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 4 shows that all the respondents (100%) agreed that they have access to a smartphone and computer with internet connection. This reveals that the respondents are exposed to the use of computer enabled devices with internet connection and are suitable to provide reliable data for this study.

**Table 5: How often digital technology is used for personal or academic purpose**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Daily	255	68%
Less than once a week	121	32%
1 - 2 times weekly	0	0%
3 - 4 times weekly	0	0%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 5 shows that the study respondents regularly use digital technology for personal and academic purpose. This is reflected in the data presented where 255 (68%) and 121 (32%) agreed that they use it daily and less than once a week, respectively for personal and academic purpose.

**Table 6; Type of digital technologies used most frequently?**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Social media	188	50%
Internet Browsing	188	50%
Online Learning Platforms	0	0%
Communication Tools	0	0%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

From the data presented in table 6, it can be deduced that the respondents use the social media and internet browsers for personal and academic purpose. This implies that the participants involved in this study frequently use social networking sites like Facebook, Instagram and Browsers like Opera mini and Chrome are used more often by the respondents.

**Table 7: Regularity in using digital technologies for academic purposes, such as researching, writing assignments, or collaborating with classmates**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Daily	325	86%
Less than once a week	51	14%
1 - 2 times weekly	0	0%
3 - 4 times weekly	0	0%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 7 clearly indicates that a dominant percentage (86%) of the study participants agreed that they often use digital technologies for academic purposes. This implies that the respondents regularly use digital technologies for researching, doing assignments and collaborating with their course mates.

**Table 8: Regularity in using digital technologies for non-academic purposes, such as entertainment, social connection, or personal interests**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Daily	376	100%
Less than once a week	0	0%
1 - 2 times weekly	0	0%
3 - 4 times weekly	0	0%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 8 pinpoints that all of the respondents agreed that they use digital technologies daily for nonacademic purposes. This implies that the study participants employ digital technologies for entertainment, social connection and personal interest.

**Table 9: Primary reasons for using digital technologies?**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Access information	177	47.1%
Connect with friends and family	144	38.3%
To learn	35	9.3%
For entertainment	20	5.3%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 9 posits that participants involved in the study use digital technologies for different reasons, however, the basic reason for using it is to access information and to connect with friends and family. This shows that the rationale behind using digital technologies among study is to search for and access information, as well as to interact with friends and family.

**Table 10: Digital technologies have a positive impact on your academic performance?**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Strongly agree	210	56%
Agree	166	44%
Undecided	0	0%
Disagree	0	0%
Strongly disagree	0	0%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 10 reveals that the respondents who participated in the study affirmed that digital technologies have a good very impact on their academic performance. This is shown in the percentage of those who strongly agreed (56%) and agreed (44%) respectively.

**Table 11: Digital technologies make learning more engaging and enjoyable?**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Strongly agree	245	65%
Agree	131	35%
Undecided	0	0%
Disagree	0	0%
Strongly disagree	0	0%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 11 denotes that 245 (65%) respondents strongly agreed that digital technologies make learning more engaging and enjoyable, while 131 (35%) agreed. This implies digital technologies make the learning experience more engaging, interesting and enjoyable.

Table 12: Level of comfort and confidence in using digital technologies?

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<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Very high	171	46%
High	121	32%
Neutral	84	22%
Low	0	0%
Very Low	0	0%
<b>Total</b>	<b>376</b>	<b>100%</b>

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**Source: Field Survey**

**2024**

Table 12 shows clearly that a majority of the respondents level of confidence in using digital technologies is very high (46%) and high (32%), respectively. This implies that the participants are comfortable and confident in using digital technologies.

**Table 13:** Suggestions to improve the use of digital technologies in the university environment

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
Cyber security training	44	12%
Promote use of E-books	75	20%
Implement AI use	201	53%
Integrate Learning Platforms	56	15%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 13 shows that a larger percentage of the study participants (53%) agreed that the implementation of Artificial Intelligence usage can help improve the use of digital technologies in the University environment. This implies that the use of AI can help improve the learning experience for students in the University.

**Table 14: Additional resources to help students better utilize digital technologies for academic and personal purposes?**

<b>Variable</b>	<b>No of Respondents</b>	<b>Percentage</b>
E-Books & Library	84	22%
Time management apps	36	10%
Educational Podcast	76	20%
Webinars	180	48%
<b>Total</b>	<b>376</b>	<b>100%</b>

**Source: Field Survey 2024**

Table 14 indicates that a dominant proportion of the respondents agreed that webinars (48%), e-books (22%) and educational podcast (20%) are resources that can help students use digital technologies better. This implies that students academic performance and leisure hours can be improved by using digital technologies like e-library, webinars and workshops and educational podcasts.

## **4.2 Discussion of Findings**

### **4.2.1 Research question one: To what extent do UNIBEN students access to digital technologies?**

In order to provide answer to the question on the extent to which UNIBEN student's access digital technology, table 4, 5 and 6 were used. The findings show that students of UNIBEN are exposed to the use of digital technologies and they have access to these digital

technologies on a daily basis. The findings also show that the participants regularly access digital technologies like social media and internet browsers on their PC and smartphones for personal or academic purposes.

The findings are reflected in table 4 which notes that all 376 (100%) respondents agreed that they have access to computers with internet connection. Table 5 indicates that 255 (68%) respondents agreed that they use digital technology daily for personal use and academic purpose, while 121 (32%) respondents believe they use it less than once a week. Furthermore, table 6 reveals that 188 respondents (50%) agreed respectively that the type of digital technologies they use more often is social media networking sites and internet browsers like Facebook, Twitter, internet browsers like Google, Chrome and Safari. The findings agree with

the study conducted by Alshuaibi et al (2018), where it was revealed that students in tertiary regularly use digital technologies like social media to gratify their academic and personal needs

#### **4.2.2: Research Question 2: What is the level of UNIBEN students Engagement in Digital Activities?**

In order to ascertain the level of UNIBEN student's engagement in digital activities, table 7, 8 and 9 were used. Findings from the study showed that UNIBEN students often use digital technologies for research, assignments and collaborating with their classmates. The findings also show that students of UNIBEN use digital technologies for leisure purposes on a daily basis. Also, the results of the study show that the basic reason they use this technology is to access information online and connect with their families and friends.

The findings are positioned in table 7 which contends that 325 (86%) of the study

participants agreed that they use digital technologies for academic purposes on a daily basis. Table 8 pinpoints that all 376 (100%) respondents agreed that they use digital technologies daily for nonacademic purposes. While table 8 posits that 177 (47.1%) respondents believe that they use digital technologies to access information, 144 (38.3%) says that it is to connect with friends and family, 35 (9.3%) agreed that it is to learn, while the remaining 20 (5.3%) says that it is for entertainment. The findings agree with the theory adopted in this study which holds that student engagement in a blended learning environment like the University is designed to satisfy their innate needs and desires: academic and nonacademic needs such as autonomy, competence, and relatedness

#### **4.2.3: Research Question 3: What is the Attitude of UNIBEN students toward Digital Technology?**

Table 10, 11 and 12 were considered appropriate to provide answer to this research question on the Attitude of UNIBEN students toward digital technology.

Based on the data presented and analyzed, findings of the study indicated that digital technologies have impacted UNIBEN students' academic performance in a positive way and that these technologies make learning very engaging and enjoyable. The findings also show that UNIBEN students are very comfortable using digital technologies and that they are confident in it's usage.

The result from the analysis are revealed in table 10 where 210 (56%) respondents strongly agreed that digital technologies have a positive impact on their academic performance, while 166 (44%) respondents agreed. Table 11 posits that 245 (65%) respondents strongly

agreed that digital technologies make learning more engaging and enjoyable, while 131 (35%) agreed. Finally, table 12 shows that 171 (46%) respondents agreed that their level of comfort and confidence in using digital technologies is very high, 121 (32%) says it is high, while 84 (22%) were neutral on their position. The findings agree with Unsworth (2004) statement where he revealed that new technologies has made the learning experience easy as students can access course materials online and even attend classes online.

#### **4.2.4 Research question 4: What are the possible suggestions to improve students engagement with digital technologies?**

Table 13 and Table 14 provided answer to the above question.

Findings from the study has shown that the study participants agreed that the best way to improve the use of digital technologies in the University environment is to adopt and implement the use of Artificial Intelligence algorithm in teaching and learning. Other suggestions include the use of e-books and libraries, cyber security training, and integration of online learning platforms. The findings also show that the respondents agreed that webinars, e-books and educational podcast are resources that can help students use digital technologies better.

The findings are shown in table 13 where 201 respondents (53%) agreed that the implementation of Artificial Intelligence usage can help improve the use of digital technologies in the University environment, 75 (20%) agreed that it is the use of e-books, 56 (15%) says that digital technologies in the university environment can be improved by integrating online learning platforms, while 44 (12%) says that it is cyber security. Table 14

on the other hand shows that 180 respondents(48%) agreed that webinars can help students use digital technologies for academic and personal purposes better, 84 respondents (22%) says it is e- books, while 76 (20%) agreed that a good resource is educational podcast (20%). The remaining 36 (10%) agreed that it is time management app.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary of Findings

The purpose of this study was to ascertain how involved University of Benin students were with digital technology. Throughout the course of doing this study, the idea of digital technologies was examined, along with other relevant literature. The survey research method was used for the study, and copies of the questionnaire were distributed to study participants in order to collect their responses. The results of the study showed that, based on the conducted investigation,

- i. Students at UNIBEN are constantly exposed to and have daily use of cutting-edge digital technologies.
- ii. Good. The academic achievement of UNIBEN students has been somewhat impacted by digital technology, which also greatly enhance and personalise the learning process
- iii. The results also demonstrate how at ease and confident UNIBEN students are with the use of digital technologies.
- iv. Students at UNIBEN concurred that implementing artificial intelligence algorithms into teaching and learning is the greatest approach to enhance the utilisation of digital technology in the university setting. The usage of e-books and libraries, cyber security education, and the incorporation of online learning platforms are some further recommendations.
- v. Students at UNIBEN concurred that instructional podcasts, e-books, and webinars are resources that can

## **5.2. Conclusion**

UNIBEN students frequently use digital technologies for study, coursework, and collaboration with their peers, according to research on the degree of student involvement with technology. This is predicated on their positive attitudes towards digital technology and their regular usage of them for both academic and nonacademic goals. According to the study's findings, digital technologies have improved UNIBEN students' academic performance and have made studying much more interesting and pleasurable.

As a result, this study comes to the conclusion that other cutting-edge technologies, such artificial intelligence (AI), should be used to enhance the usage of digital technology in university settings.

## **5.3 Recommendations**

Based on the findings of this study, the following recommendations were given:

- i. Management and instructors should work to include AI into the teaching and learning process, as it has been duly observed that UNIBEN students feel it can enhance the usage of digital technologies in the university setting.
- ii. To enhance students' learning experiences in the digital age, management and interested parties should make provisions for e-books and e-libraries available.
- iii. To better inform pupils about the risks associated with using the internet, cyber security awareness training ought to be implemented. Their coursework must to incorporate this instruction.

- iv. To enhance the usage of digital technologies, in addition to social media and web browsers, other digital resources including webinars and online seminars should be utilised.

#### **5.4 Suggestions for Further Studies**

- The research study's conclusions have provided insight into how involved students are with digital technologies. Building on these results, the following research ideas can be considered for future work:
- A digital tool-based comparative study of student participation in various programmes and courses.
- Elements affecting University of Benin students' use of digital tools.
- The attitude and perspective of UNBEN students towards the use of digital technology in instruction and learning.

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The disadvantage of digital technology is available at:

<https://turbofuture.com/misc/Disadvantages-of-Digital-Technology>

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